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## THE QUESTION OF THE NECESSITY OF A SECOND OPERATION FOR THE REMOVAL OF THE APPENDIX IN CASES WHERE AN APPENDICEAL ABSCESS HAS BEEN TREATED BY SIMPLE INCISION AND DRAINAGE

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In November, 1907, I read a paper before the Medical Society of Virginia entitled "An Analysis of the Last Five Hundred Cases of Appendicitis Operated on at St. Luke's Hospital." In this list of cases there were 93 appendiceal abscesses. In 70 cases the abscesses were not adherent to the abdominal wall, but were between the folds of the bowel and omentum, in a position they could only be reached after opening the general peritoneal cavity. In all these cases the adhesions were separated, the pus sponged out, and the appendix sought for and removed. In 23 cases the abscesses were adherent to the parietal peritonium, and they were simply incised and drained. In speaking of this last group of cases, I said:

"If an abscess is adherent to the parietal peritonium, it should simply be opened and drained, and no effort made to locate or remove the diseased appendix. With all due deference to those who do not agree with me, I consider it a surgical crime to break up the protecting wall formed by Nature and to liberate infectious fluid into the peritoneal cavity, when a safe exit may be given the pus by simply following the indications of Nature

and making an incision at the point where she is endeavoring to effect drainage. \* \* \*

The safety of the plan advocated is shown by the fact that of the twenty-three cases reported there were no deaths. In every instance the patients were told that the operation was not for appendicitis, but for an abscess which was the result of appendicitis, and that the appendix had not been removed. They were warned of the possibility of future trouble, and were advised to apply promptly for surgical relief if in future they suffered from abdominal pain."

The views expressed in the foregoing paragraph caused considerable discussion on (a) the advisability of leaving the appendix at the first operation; and (b) the necessity for its removal by a second operation. I will not in this paper take up the first question, as I believe it is pretty well settled, but I will devote the time at my disposal to a consideration of the second, as there seems to be a difference of opinion as to whether a secondary operation ought to be done on every case as a routine measure, or confined to the few cases where it is plainly necessary owing to recurrence of symptoms.

To reach conclusions I have pursued two methods of investigation. First, I have written to a number of surgeons to inquire the rule they follow; and second, I have written to the twenty-three patients whose cases I reported to ascertain their subsequent history. The following are the replies received from the surgeons. A few did not answer my question definitely, probably due to the fact that it was not worded explicitly. Some have answered at such length that their opinion has to be given in abridged form.

Dr. Dudley P. Allen of Cleveland writes that he has simply drained in a large number of cases of appendicular abscess, and in the majority of them the cure has been permanent. It is not his habit to make a secondary operation unless there is a recurrence of symptoms. He cannot say definitely what percentage requires a secondary operation, but it is certainly very small.

Dr. Arthur D. Bevan of Chicago writes that in many cases he has found it necessary to do a second operation to remove the appendix where the primary operation was that of draining an abscess. This has occurred so frequently (in perhaps 50 per cent of his cases) that he now advises all patients upon whom he operates to drain an abscess to have the appendix removed at a second operation.

Dr. Herman Bolt of New York apparently does not advise an operation unless called for by symptoms. He writes: "It is my opinion that if an appendix does not undergo atrophic changes after an appendiceal abscess, so that it becomes innocuous, it is likely to cause symptoms at a subsequent time. At the first evidence of appendicular inflammation showing that the appendix is still inflamed, it should be removed.

Dr. G. E. Brewer of New York writes he does not fail to remove the appendix in over 2 per cent of his operations. In these cases he advises its removal at a later period. He has seen a number of cases, however, in which the patient has had no trouble.

Dr. Joseph D. Bryant of New York writes that he is disposed to believe that the causes of abscess should be removed in all instances when practicable.

Dr. George W. Crile of Cleveland writes that in cases of acute appendicitis, with abscess, when he does not remove the appendix at the time, he gives the patient to understand that the operation will be done in two stages. After the wound of the first operation is healed he operates a second time, removing the appendix and suturing in layers to prevent hernia.

Dr. Daniel N. Eisendrath of Chicago believes that it is a safer plan, whenever possible, to search for and remove the appendix at the primary operation unless this involves the breaking down of important lesions. When the appendix is not removed he does not believe there will be subsequent trouble in more than one per cent of cases.

Dr. Ellsworth Elliot, Jr., of New York advises a secondary operation for the removal of the appendix if symptoms of subsequent trouble develop after primary evacuation of an abscess. He believes if the primary operation is not done early the appendix is eventually a slough in many cases, coming away with the evacuation of the pus, or subsequently in the discharge, and gives no further trouble.

Dr. John F. Erdman of New York writes that when, on account of the precarious condition of the patient, he fails to remove the appendix, he advises a second operation within a relatively short time, and if they refuse to submit to it he tries to impress them with the necessity of watching for trouble.

Dr. J. M. T. Finney of Baltimore writes that in cases of abscess treated by simple incision and drainage, he earnestly advises a secondary operation for the removal of the appendix. He was forced to this opinion by seeing three cases of death during secondary attacks of appendicitis after an appendiceal abscess had been drained and the appendix left in.

Dr. John H. Gibbon of Philadelphia writes that he rarely fails to remove the appendix. At the same time, he thinks it a mistake to lay down a rule in regard to the subject, for what would be a good rule for one operator would be a bad-one for another. If the appendix has been left in, he thinks it advisable to remove it later.

Dr. W. D. Haggard of Nashville states that out of 21 ancient appendiceal abscesses (10 days to 4 weeks' standing), most of which were adherent to the parietes, and which he opened and drained without searching for and removing the appendix, he had to reoperate but four times; in a girl of eight the abscess recurred and was drained three times before removal. In an elderly man a sinus persisted for 14 weeks, and when the appendix was removed it contained a cherry stone-sized enterolith. The third, in a man of 36, had two recurrent attacks, and when operated the appendix was adherent by its tip to the abdominal wall at the site of the drainage aperture. The fourth, in a woman of 29, continued to give trouble—tenderness and soreness with some disability—and was found adherent and subacutely inflamed eight months after the first operation. He admonished the others of the wisdom of a secondary operation, but they all deferred it with the promise to have it removed if they had further trouble. Where the abscess is not adherent to the abdominal wall, he always removes the appendix.

Dr. R. H. Hart of Philadelphia thinks that an appendiceal abscess should be simply opened and drained, for if a persistent attempt is made to remove the appendix there are apt to be disastrous results. If the appendix subsequently gives trouble, it should be removed by a secondary operation.

Dr. George Ben Johnston of Richmond, Va., states that it is his practice to open appendiceal abscesses, drain them, and not attempt to remove the appendix in the presence of pus. In his experience hernia usually follows, and

he invariably advises a secondary operation for the removal of the damaged appendix and the repair of the hernia if it exists.

Dr. Howard Lilenthal of New York apparently does not advise a secondary operation unless symptoms develop. He writes: "When sinuses or fistulæ persist, incise the tract and remove the appendix or its remnant. When there are persistent symptoms pointing to appendicitis, following healing of a drained abscess, perform secondary appendectomy."

Dr. W. J. Mayo of Rochester, Minn., writes that, as far as possible, he recommends and practices the removal of the appendix at the time of the primary operation. When, for any reason, this is not done, he advises a secondary operation in all cases, as he believes that 25 per cent or more of patients will suffer serious symptoms if the appendix is not removed.

Dr. Edward Martin of Philadelphia writes that he has so habitually taken out the appendix for all conditions that he has had no personal experience in the removal of the organ at a secondary operation.

Dr. E. Denegre Martin of New Orleans writes that he has always contended that just as long as a diseased appendix remains in the abdominal cavity it is a menace to life, and liable to explode when least expected and often when most inconvenient. His personal experience has been such as to emphasize the importance of a secondary operation in every instance.

Dr. Rudolph Matas of New Orleans writes that he is convinced that if an appendix has been sufficiently damaged to cause an abscess requiring drainage, that sooner or later it will cause a repetition of suppuration. As a general rule, he advises a secondary operation to protect the patient from future trouble, but in a few instances, where the individual is aged, infirm or suffering from constitutional disease, he waits until the operation is indicated by recurrence of symptoms.

Dr. Willy Meyer of New York states that he believes it wise to search for and remove

the appendix when operating for perityphlitic abscesses, provided the condition of the patient warrants such interference. For many years he simply drained such cases, and not more than from 5 to 10 per cent of patients had trouble later on. In the exceptional instances the symptoms were usually due to fecal concretions within or outside the appendix, which had not been removed.

Dr. J. B. Murphy of Chicago says that he has had to reoperate on a large number of recurrent cases that had already been drained for abscess. The percentage has been sufficiently large for him to say to all patients operated on and drained that they should come back and have the appendix removed as soon as they have recovered from the suppuration.

Dr. A. J. Ochsner of Chicago states that he has had so many serious recurrences in this class of cases that he now makes it a rule to always advise a secondary operation. Moreover, he forbids these patients taking any form of nourishment except liquids, mush and soft boiled eggs, until they have the appendix removed.

Dr. Roswell Park of Buffalo writes that he hardly ever advises a secondary operation to remove the appendix which was not hunted up and removed when an abscess was drained, unless it seems to be producing occasional or persistent, even though mild, symptoms of discomfort—that is, “so long as it remains innocent and inoffensive, I do not feel like disturbing it, but when it growls I would urge its removal.”

Dr. Joseph Price of Philadelphia writes that he holds hard and fast to early and complete work, a nil mortality hinging upon both; that diagnosis and surgery should be applied in cases of appendicitis before the abscess develops, and the condition ought never to occur; that he neither approves nor practices simple incision, as when perforation or gangrene exists it favors all sorts of septic and mechanical complications.

Dr. Joseph Ransohoff of Cincinnati writes that after looking over his cases he finds only three in which a secondary operation was necessary after incision and drainage of an appendiceal abscess. These cases recovered.

Dr. W. L. Rodman of Philadelphia writes that he does not remove the appendix at the first operation in more than one-third of his abscess cases. He drains with iodoform gauze, using a fan-shaped piece internally to protect the general cavity. The gauze is left in from five to eight days. Usually the wound is left open and the peritoneum is sutured to the skin with catgut to prevent its retraction. As soon as active suppuration ceases he removes the appendix and closes the wound. He believes, however, that if the appendix is not removed but a small percentage of patients would have symptoms, as the suppurative process usually puts the appendix out of commission.

Dr. John A. Wyeth of New York writes that where there is an abscess of large size he drains it through the smallest possible incision. After recovery he does not advise a radical operation for the removal of the appendix, unless, after an interval, symptoms of recurring appendicitis are present. In a fair proportion of cases there is no recurrence, and when a patient is advised to undergo a radical operation upon the first appearance of recurrent symptoms, he considers that the surgeon has performed his full duty.

So much for the opinions of the surgeons. Now for the histories of the patients. I have taken the group of twenty-three cases reported in my article read before my State society, the earliest operated on five years ago, the last one year ago, selecting them because none was so old as to have developed intercurrent diseases, and none so recent as to have escaped the possibility of complications arising from the operation. Of these twenty-three cases I was able to trace all but one. This was a small boy whose parents have moved and could not be located.

## BRIEF HISTORY OF CASES.

Case 1. Boy, aged 12; ill two weeks. Large abscess opened and drained; appendix not removed. He reports that he has had no subsequent symptoms. He has no hernia and his general health is perfect.

Case 2. Man, aged 22; ill ten days. Large abscess opened and drained; appendix not removed. Reports that he has no hernia, has had no colic, does not suffer from constipation or indigestion, and that his health is better now than it was before the operation.

Case 3. Boy, aged 14; ill four weeks. Large abscess opened and drained; appendix not removed. He has had no hernia, health is excellent, and has not consulted a doctor since he left the hospital.

Case 4. Man, aged 46; ill two weeks. Large abscess opened and drained; appendix not removed. He has a slight hernia, no digestive symptoms, and his general health is good.

Case 5. Man, aged 32; ill ten days. Abscess incised and drained; appendix not removed. He reports that he suffers a little from constipation, has no hernia, and general health is excellent.

Case 6. Boy, aged 14; ill twelve days. Large abscess opened and drained; appendix not removed. He has no hernia, digestion is good, and has not suffered pain since the operation.

Case 7. Man, aged 24; ill seven days. Large abscess opened and drained; appendix not removed. He has no hernia, digestion is good, and he has recently been passed for life insurance.

Case 8. Man, aged 33; ill ten days. Large abscess opened and drained; appendix not removed. He has no hernia, does not suffer from constipation or indigestion, and has not lost a day from work in the last two years.

Case 9. Boy, aged 17; ill nine days. Large abscess opened and drained; appendix

not removed. He has a slight hernia, does not suffer from dyspepsia, and his health is good.

Case 10. Boy, aged 9; ill six days. Abscess opened and drained; appendix not removed. He has no hernia, does not suffer with indigestion, and his present health is good.

Case 11. Girl, aged 8; ill ten days. Abscess opened and drained; appendix not removed. Her mother reports that "she had a small hernia, but it is now closed." She has had no constipation or dyspepsia, and is in better health than at any time during her life.

Case 12. Woman, aged 19; ill four weeks. Large abscess opened and drained; appendix not removed. She has no hernia, and is as well now as before the attack of appendicitis.

Case 13. Woman, aged 24; ill four weeks. Large abscess opened and drained; appendix not removed. She has no hernia, her digestion is good, and her general health is excellent.

Case 14. Man, aged 26; ill two weeks. Abscess opened and drained; appendix not removed. He has no hernia, his digestion is perfect and his general health is good.

Case 15. Boy, aged 10; ill two weeks. Large abscess opened and drained; appendix not removed. He has no hernia, his digestion is good; he has been free from abdominal pain, and his general health is perfect.

Case 16. Man, aged 39; ill two weeks. Large abscess opened and drained; appendix not removed. He has no hernia, does not suffer from constipation, has had no pain, and has not lost an hour from sickness since leaving the hospital.

Case 17. Man, aged 62; ill four weeks. Large abscess opened and drained; appendix not removed. He has no hernia, his digestion is good, does not suffer from constipation, has had no pain, and his health is very good considering his age.

Case 18. Man, aged 31; ill three weeks.

Large abscess opened and drained; appendix not removed. He reports that he has no hernia; that he has not had colicky pains, but he suffers a great deal from constipation and indigestion, and that his physician has recently advised him to come back and have the appendix removed.

Case 19. Woman, aged 36; ill five days. Abscess opened and drained; appendix not removed. Reports that she has no hernia, but her digestion is bad, and she has had two acute attacks of abdominal pain, and fears it will be necessary to have another operation performed.

Case 20. Man, aged 24; ill eight days. Large abscess opened and drained; appendix not removed. He has no hernia, has been free from pain, suffers some with constipation, and, except for boils, his general health is good.

Case 21. Boy, aged 16; ill six days. Abscess opened and drained; appendix not removed. Reports that he had a severe attack of pain after leaving the hospital; that the wound opened and discharged for two or three days and then healed. The incision is now closed; he has no hernia, his digestion is good, and his general health excellent.

Case 22. Girl, aged 8; ill five days. Abscess opened and drained; appendix not removed. Her mother reports that she has no hernia, does not suffer from colicky pains, digestion is good, and that her general health is better since being operated on than it had been for a long time.

An analysis of these cases will show that all the patients are living from one to five years after the operation; that none has been operated on a second time; that all, with possibly

one exception, are in good general health; that only two have had attacks of colicky pains; that two have a slight hernia, and that two suffer with digestive disturbances.

The result of my study of the opinion of the various surgeons quoted and of the case histories of the number of cases collected is, that while a surgeon may be justified in advising a secondary operation in all cases as theoretically the safest plan to follow, he is not justified in persuading, urging or starving a patient until he consents to have it done. The appendix should always be removed at the first operation if the abscess is small and not adherent to the abdominal wall beneath the incision. It should be left only in neglected cases, where the abscess is large and attached to the parietal peritoneum. When this condition exists the appendix is usually gangrenous, undergoes liquefaction, and is eliminated with the discharges. In such cases suppuration continues, as a rule, for several weeks, and before a secondary operation could safely be done the patient is homesick, weakened physically by confinement, and depleted financially by the expenses incident to his stay in the hospital. Experience seems to show that if subsequent trouble develops the infection is not usually acute, and pus, if it is formed, is walled in by old adhesions. Therefore, I think that the surgeon does his duty if he makes it clear to the patient that, owing to the complications which existed, it was not found safe to remove the appendix, and tells him that while a second operation is advisable, it is not imperative unless he has tenderness over the incision, colicky pains in the bowels or persistent digestive disturbances, in any of which instances it is distinctly necessary for him to promptly seek surgical assistance.